# Annual Report

# FOREST PEST CONDITIONS IN WISCONSIN

## 1954

WISCONSIN CONSERVATION DEPARTMENT

COOPERATIVE FORESTRY DIVISION

FOREST PESTS — SURVEY AND CONTROL

# ANNUAL REPORT

# FOREST PEST CONDITIONS IN WISCONSIN

# 1954

By
Wisconsin Conservation Department
Cooperative Forestry Division

In Cooperation With
Lake States Forest Experiment Station, Forest Service, U.S.D.A.
Wisconsin Department of Agriculture -- State Entomologist
University of Wisconsin
Private Industry
Counties

## LIST OF INSECTS AND DISEASES REPORTED

The more important species are discussed in some detail while those of less importance are mentioned briefly. Since this report is based on reconnaissance surveys, no attempt is made to define or separate infestations causing economic losses in forest stands from those that are appearing in epidemic proportions while exerting little influence in growth, mortality or composition of the stand.

It is very difficult to describe insect abundance so that all concerned with the survey will have the same interpretation. Actual numbers may be used in sampling when conducting a reconnaissance survey and serve a limited capacity. They can, however, give a false impression unless other factors as site, host health, class, degree and effectiveness of inhibiting factors, etc. are also known. Some or all of these factors are considered when conducting an appraisal survey. The criterion of abundance used in this report is purely relative and very general. Specific information as to the location of the more important infestations of certain species may be had by writing to this department or referring to the maps on pages 8 to 18.

Criterion of abundance:

absent - no pests found on host trees.
scarce (light) - a few individuals present; no perceptible damage.
moderately abundant (medium) - damage general throughout area of infestation and possibly some form of decadence evident; center of infestation may show severe damage.
very abundant (heavy) - damage severe throughout area of infestation; some trees may be dead and others in a dying condition or insects may be doing maximum amount of damage of which they are capable of doing.

1. Forest Tent Caterpillar - Malacosoma disstria Hbn. Based on a winter egg band survey made in early December of 1954, it appears that the infestation reached its peak this year and is now on the decline. The parasitic fly, Sarcophaga aldrichi (Park), is expected to be present in much greater abundance in 1955.

The total area encompassed by the infestation in the state during 1954 was 8,220,769 acres.

2. European Pine Sawfly - Neodiprion sertifer (Geoff.) Eight larvae identified as this species were found near Arkdale in Adams County by Philip Smith and R. C. Wilkinson of the State Department of Agriculture. Host - Red Pine.

The closest previously recorded infestation is south of Rock Island, Illinois, a distance of approximately 200 air miles from the Arkdale area.

This species was first discovered in the United States in New Jersey in 1925. It is a serious defoliator of pine and among its hosts are red, Scotch, jack and mugho pines. It overwinters in the egg stage similar to Neodiprion nanulus and Neodiprion americanus banksianae. Eggs hatch early in May and feeding is done on the mature foliage. The larvae mature about the second or third week in June before the new growth has fully emerged. There is one generation annually.

3. Pine Tortoise Scale - Toumeyella sp. This pest continued to increase in Oconto, Marinette and Florence Counties. Aerial and ground surveys were conducted to determine extent of infestation. An experimental spraying was conducted on 1,200 acres of the more heavily infested areas. Losses were estimated at close to 500 acres. Host - Jack Pine.

Heavy infestations covering small acreages of natural stands were reported in the Gordon area in Douglas County and north of Hayward in Sawyer County.

A September survey in Vilas County disclosed a light infestation of the scale over 1,100 acres in 6 to 15-year-old plantations in the Conover area and another light infestation of 1,200 acres in the Big Flats area of the Northern Highland State Forest.

Other moderate to heavy infestations occurred in Outagamie, Waupaca, Clark, Eau Claire, Langlade and Sheboygan Counties.

4. Pine Budworm - Choristoneura pinus (Free.) An outbreak of approximately 20,000 acres is present in Washburn and Douglas Counties. The epidemic is developing in mature stands of jack pine and most of the damage is confined to the smaller diameter classes and to the reproduction in these stands.

In Marinette County a budworm infestation of 8,900 acres is attacking stands of variable stocking and age classes.

Losses from outbreaks in Washburn and Marinette Counties have been light; mortality has been in the two-inch and reproduction classes. The outbreaks are expected to increase in intensity in 1955.

5. Spruce Budworm - Choristoneura fumiterona (Clem.) Cast pupal skins were found by the U. S. Forest Service on numerous branch tips of balsam fir west of Shawano.

6. Red-headed Pine Sawfly - Neodiprion lecontei (Fitch) The decline of this pest continued. Infestations were small and were light to moderate with few heavy infestations reported. Direct control was necessary on a 15-acre plantation of Norway Pine in Lincoln County and in Chippewa County; spraying was by hand.

7. European Pine Shoot Moth - Rhyacionia buoliana (Schiff.) Heavy infestations reported in Manitowoc, Sheboygan and Milwaukee Counties. Hosts - Norway Pine and Mugho Pine.

8. Saratoga Spittlebug - Aphrophora saratogensis (Fitch) Areas of infestation not previously reported were found in Lincoln and Oneida

Counties. Some areas were small but most were in blocks exceeding 80 acres. Egg laying was heavy in all areas. Aggregate acreage reported was in excess of 2,000 acres.

| | | |
|---|---|---|
| Marinette County | - | 100 acres |
| Vilas | " | - 40 " |
| Oneida | " | - 1200 " |
| Langlade | " | - 100 " |
| Lincoln | " | - undetermined to date |

Scattered flagging was reported in Sawyer County on Norway Pine.

9. Red Pine Sawfly - Neodiprion nanulus (Schedl) Reported light to moderate locally in several counties. Damage was negligible. Heaviest infestations occurred in Burnett, Waushara and Wood Counties.

10. Introduced Pine Sawfly - Diprion similis (Htg.) Light to moderate in northwest counties.

11. European Elm Bark Beetle - Scolytus multistriatus (Marsh.) Two collections were made by the Conservation Department observers, one in Dodge County and the other in Fond du Lac County. The State Department of Agriculture reports it to be abundant in widely scattered areas of Milwaukee County and in the southern part of Rock County. Lighter scattered infestations were found in Racine, Kenosha and Walworth Counties.

12. Swaine's Sawfly - Neodiprion swainei Midd. Reported locally abundant in Sauk and Juneau Counties and in the southern part of Wood County.

13. Jack Pine Sawfly - Neodiprion americanus banksianae Roh. A heavy infestation was reported on a 40-acre tract of jack pine plantation in Lincoln County.

14. Larch Casebearer - Coleophora laricella (Hbn.) Present over the entire range of tamarack in the state. Severest defoliation occurred in the northeast and central areas.

15. White Pine Weevil - Pissodes strobi (Peck) Severe damage to many white and jack pine plantations was sustained in the northern half of the state. In some plantations, 50% to 95% of the leaders were infested. Heaviest damage occurred in the following counties: Douglas, Langlade, Vilas, Sawyer, Dunn and Rusk.

16. Larch Sawfly - Pristiphora erichsonii (Htg.) Large acreages of larch in Washburn and Sawyer Counties were reported to be complete defoliated. Some stands in Marathon County received heavy defoliation. Medium to light defoliation was observed in Waupaca, Manitowoc and Marinette Counties. The pattern throughout the state as a whole was erratic.

17. Walkingsticks - Diapheromera femorata (Say) Heavy infestations defoliated several hundred acres of hardwoods in the northern half of Marinette County; the stands were predominantly oak. An outbreak in

which 80 acres were completely defoliated occurred in the town of Bridge Creek, Eau Claire County.

18. Birch Skeletonizer - Bucculatrix canadensisella Chamb. Severe browning of white birch foliage was sustained over the entire northern half of the state in the late summer.

19. Saddle Prominent - Heterocampa guttivitta (Wlkr.) Heavily defoliated a 20-acre tract of hard maple in Kewaunee County.

20. White Pine Sawfly - Neodiprion pinetum (Nort.) Attacked scattered white pines in Green Lake and Rock Counties. Damage was light as only a few colonies were found.

21. Zimmerman Pine Moth - Dioryctria zimmermani (Grote) Light populations were reported on Norway pine in Buffalo and Chippewa Counties. Damage was limited to windbreaks and older plantations with wide spacing.

22. Yellow-headed Spruce Sawfly - Pikonema alaskensis (Roh.) Scattered colonies were found on white spruce in Price, Ashland, Oconto and the heaviest in Sheboygan County.

23. Cherry Scollop Shell Moth - Calocalpe undulata (L.) Heavy infestations were reported locally in Fond du Lac, Columbia and Portage Counties.

24. Ips Bark Beetles - Ips pini (Say) Attacks were reported to pines following drought and winter injury in Outagamie, Marathon, Waushara and Jackson Counties.

The following is a list of lesser important insects reported in light to moderate infestations.

Aspen Tortrix - Archips conflictana (Wlkr.)
White Pine Aphid - Cinara strobi (Fitch)
Walnut Datana - Datana integerrima G. & R.
Pine False Webworm - Acantholyda erythrocephala (L.)
Yellow-necked Caterpillar - Datana ministra (Drury)
Eastern Tent Caterpillar - Malacosoma americana (F.)
Pine Spittle Bug - Aphrophora parallela (Say)
Oak Twig Pruner - Hypermallus villosus (F.)
Root Collar Weevil - Hylobius radicis Buch.
Jack Pine Eucosma - Eucosma sonomana Kearf.
Oak Skeletonizer - Bucculatrix ainsliella Murt.
Kermes Scale on Oak - Kermes sp.
Pitch Twig Moth - Petrova albicapitana (Busck.)
Fall Webworm - Hyphantria cunea (Drury)
---------- - Datana drexeli Hy. Edw.
Eastern Spruce Gall Aphid - Chermes abietis L.
Pine Needle Scale - Phenacaspis pinifoliae (Fitch)
Cottonwood Leaf Beetle - Chrysomela scripta F.
White Grubs - Phyllophaga spp.
Cottony Maple Scale - Pulvinaria vitis L.
Ugly Nest Caterpillar - Archips cerasivorana (Fitch)
Red Spider - Tetranychus telarius L.

## Diseases

1. Maple Dieback - A wilt which has the symptoms of Verticilium wilt caused increased mortality southeast of Wausau.

New areas of infestation ranging from 2 to 20 acres have been found north of Wausau.

2. White Pine Blister Rust - Cronartium ribicola (Fischer) Reported to be moderately abundant in Douglas, Oneida, Langlade, Outagamie and Marathon Counties; more detailed information may be had by writing to: Mr. T. F. Kouba, Pathologist, A.R.A., 315 North Carroll Street, Madison 3, Wisconsin.

3. Oak Gall Rust - Cronartium cerebrum (Berk.) Very prevalent in some plantations in Eau Claire County. Infestation appears to have advanced on a large scale in 1951 when conditions were ideal for introduction.

4. Oak Wilt - Endoconidiophora fagacearum (Bretz) Reported throughout the central and southern portion of the state.

5. Winter Injury - Damage was heavy to offsite white pine and spruces in the central area. In some of these stands white pine blister rust was also present and an appraisal was difficult without a detailed examination of the area.

Other diseases attracting attention throughout the state were:

White Pine Blight
Spruce Needle Rust - Peridermium sp.
Pine Needle Rust - Coleosporium solidaginis
Cedar Apple Rust - Gymnosporangium juniperi-virginianae and G. globosum
Needle Cast - Hypodermella ampla
Sweetfern Blister Rust - Cronartium comptoniae

## DIRECT CONTROL OPERATIONS

Aerial spraying was done on an experimental basis on 135 acres in Marinette County re control of the pine tortoise scale (Toumeyella sp.). This was a cooperative undertaking with the University of Wisconsin, Marinette County and the Department all taking part. In addition, Marinette County sprayed 1,053 acres in the same area for control of the scale.

Spraying by hand for control of the red-headed pine sawfly (Neodiprion lecontei) was done on 20 acres in Oneida County and 20 acres in Chippewa County.

Aerial and ground spraying was also done by private landowners in Bayfield, Burnett, Douglas and Washburn Counties to control the forest tent caterpillar (Malacosoma disstria) on and adjacent to their property.

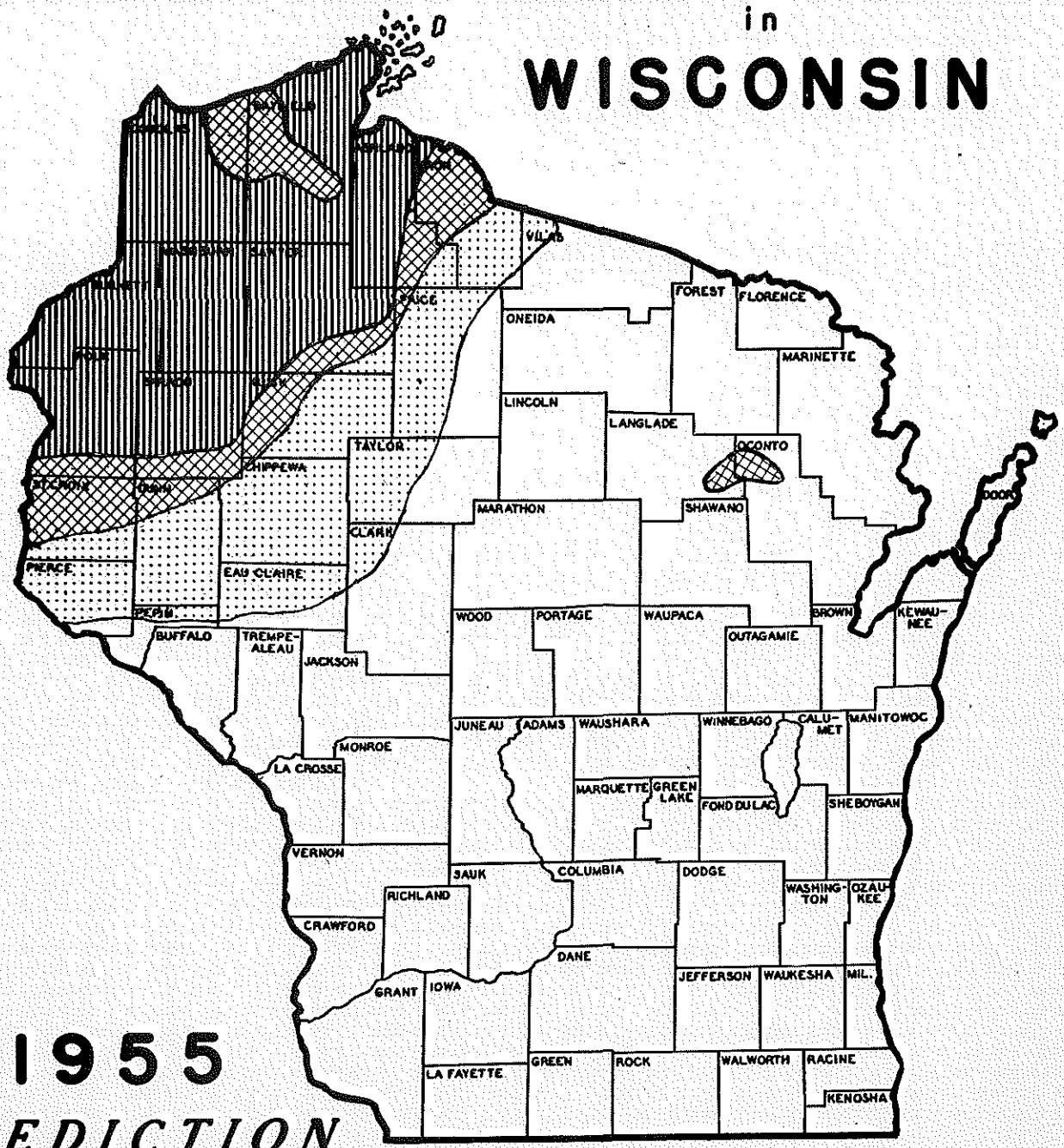
FOREST TENT CATERPILLAR INFESTATION

GROSS ACREAGE

1954

| County | Heavy | Medium | Light | Total |
|---|---|---|---|---|
| Douglas | 744,452 | 103,517 | | 847,969 |
| Bayfield | 657,113 | 309,287 | | 966,400 |
| Ashland | 44,853 | 273,612 | 351,615 | 670,080 |
| Iron | | 52,013 | 459,347 | 511,360 |
| Sawyer | 395,822 | 258,142 | 212,596 | 866,560 |
| Washburn | 508,700 | 39,780 | | 548,480 |
| Burnett | 523,623 | 45,337 | | 568,960 |
| Polk | 253,156 | 149,826 | 216,538 | 619,520 |
| Barron | | 163,251 | 405,709 | 568,960 |
| Rusk | | 86,314 | 504,406 | 590,720 |
| Langlade | | 103,908 | 453,532 | 557,440 |
| Marinette | | 85,504 | 818,816 | 904,320 |
| Totals | 3,127,719 | 1,670,491 | 3,422,559 | 8,220,769 |

# FOREST INSECT CONDITIONS in WISCONSIN




# 1955 *PREDICTION*

# FOREST TENT CATERPILLAR INFESTATION

ANTICIPATED AREAS & DEGREES OF INFESTATIONS FOR 1955 BASED ON A WINTER EGG BAND SURVEY

## DEGREES OF INFESTATIONS

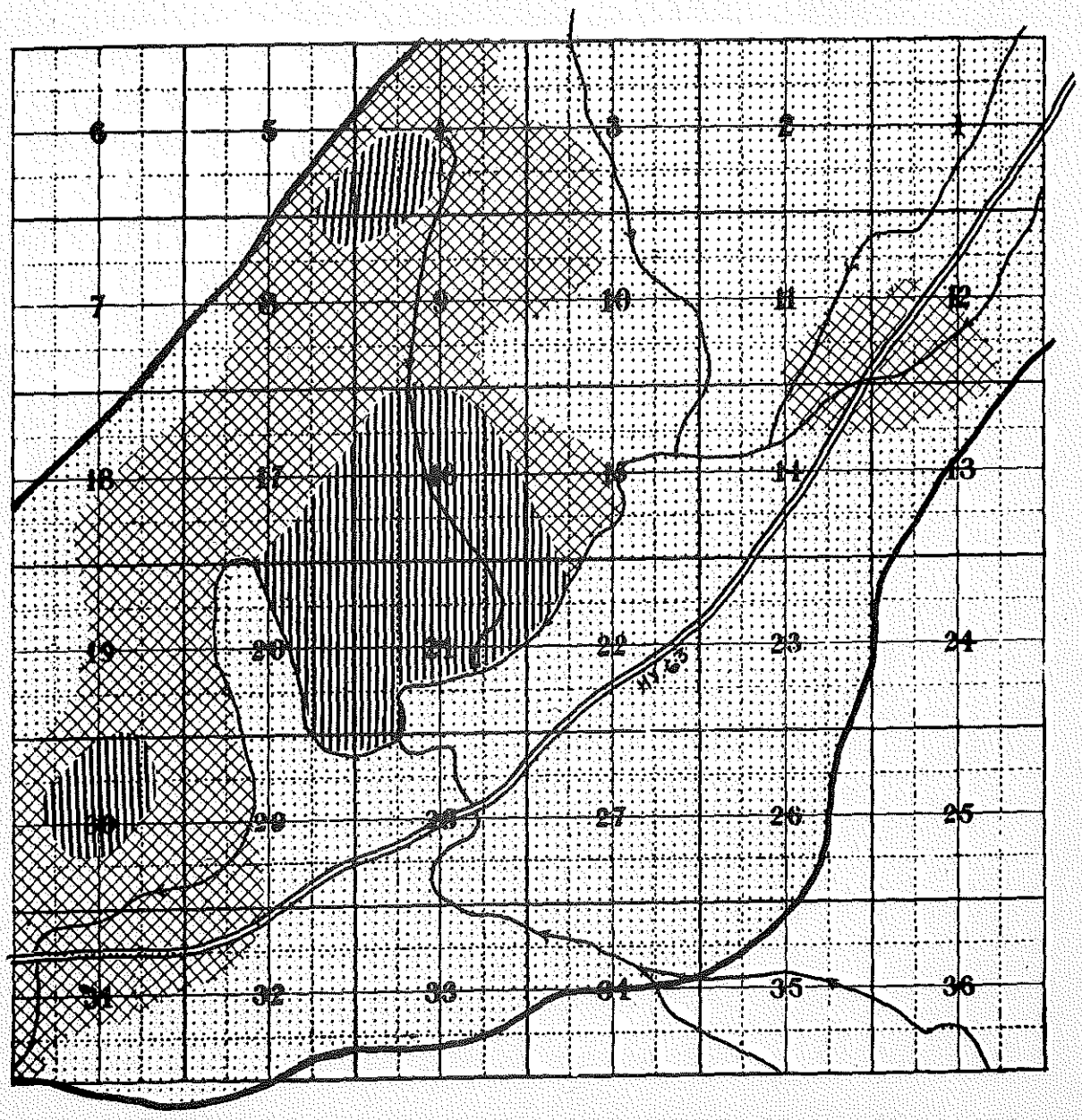
HEAVY

MEDIUM

LIGHT

WISCONSIN CONSERVATION DEPARTMENT

# FOREST INSECT CONDITIONS IN WISCONSIN 1954

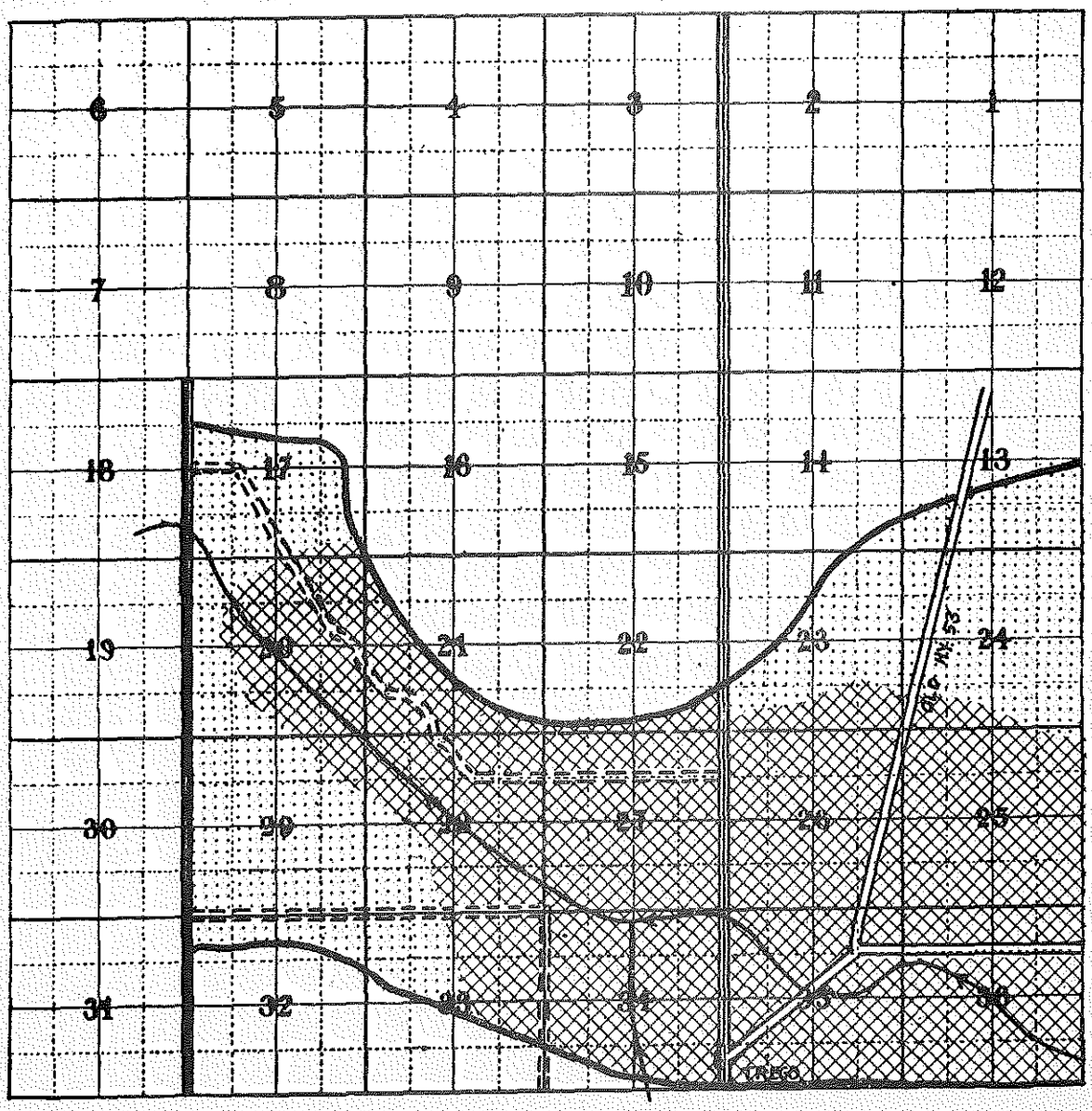



## JACK PINE BUDWORM INFESTATION IN WASHBURN COUNTY - 1954

TOWNSHIP 40N.
RANGE 11W.

— TYPE LINE
LIGHT
MEDIUM
HEAVY

# FOREST INSECT CONDITIONS IN WISCONSIN 1954




## JACK PINE BUDWORM INFESTATION IN WASHBURN COUNTY-1954

TOWNSHIP 40 N.
RANGE 12 W.

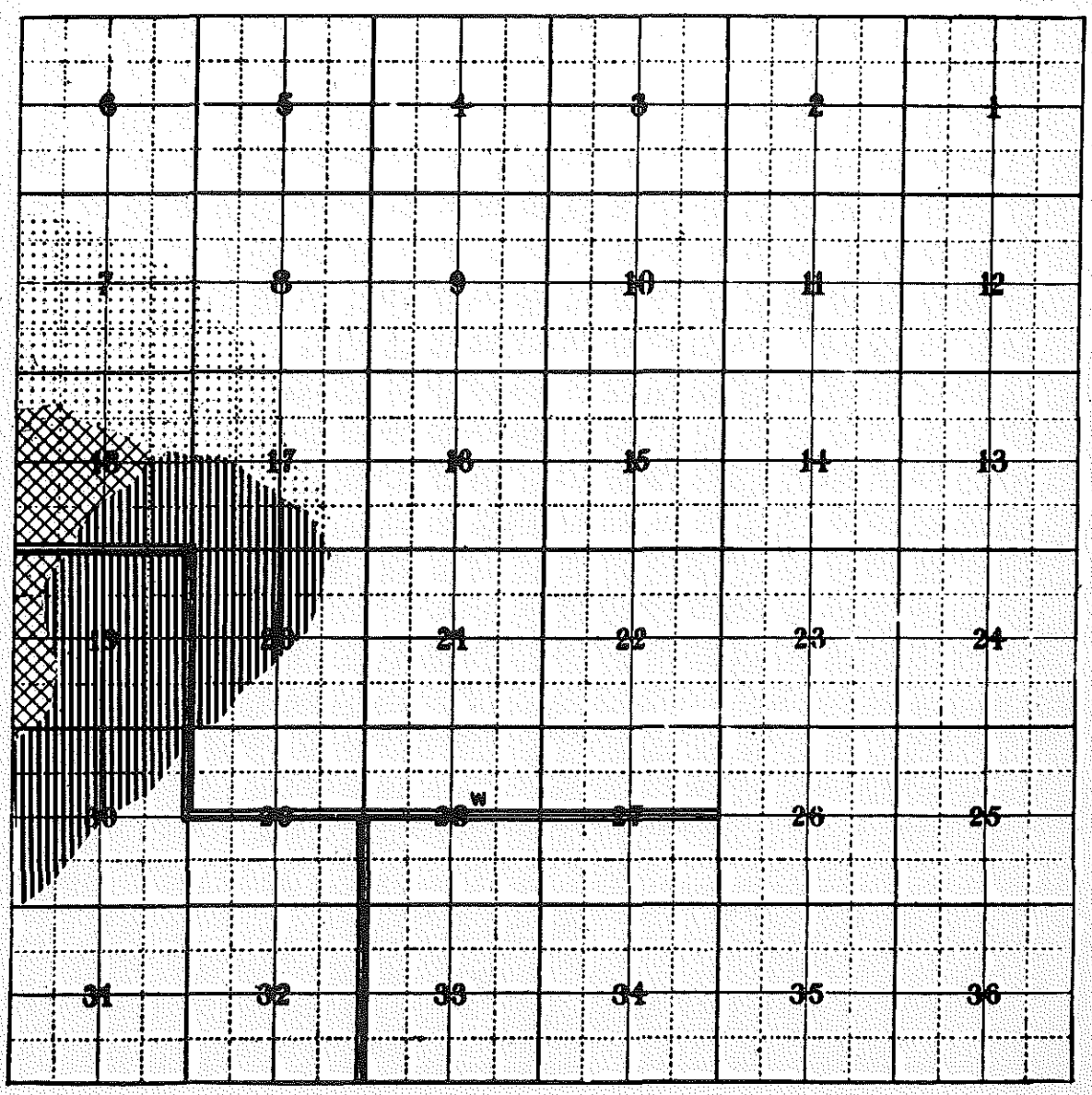
—— TYPE LINE
LIGHT
MEDIUM
HEAVY

# FOREST INSECT CONDITIONS

IN

# WISCONSIN

1954




## JACK PINE BUDWORM INFESTATION IN MARINETTE COUNTY-1954

TOWNSHIP 32N.

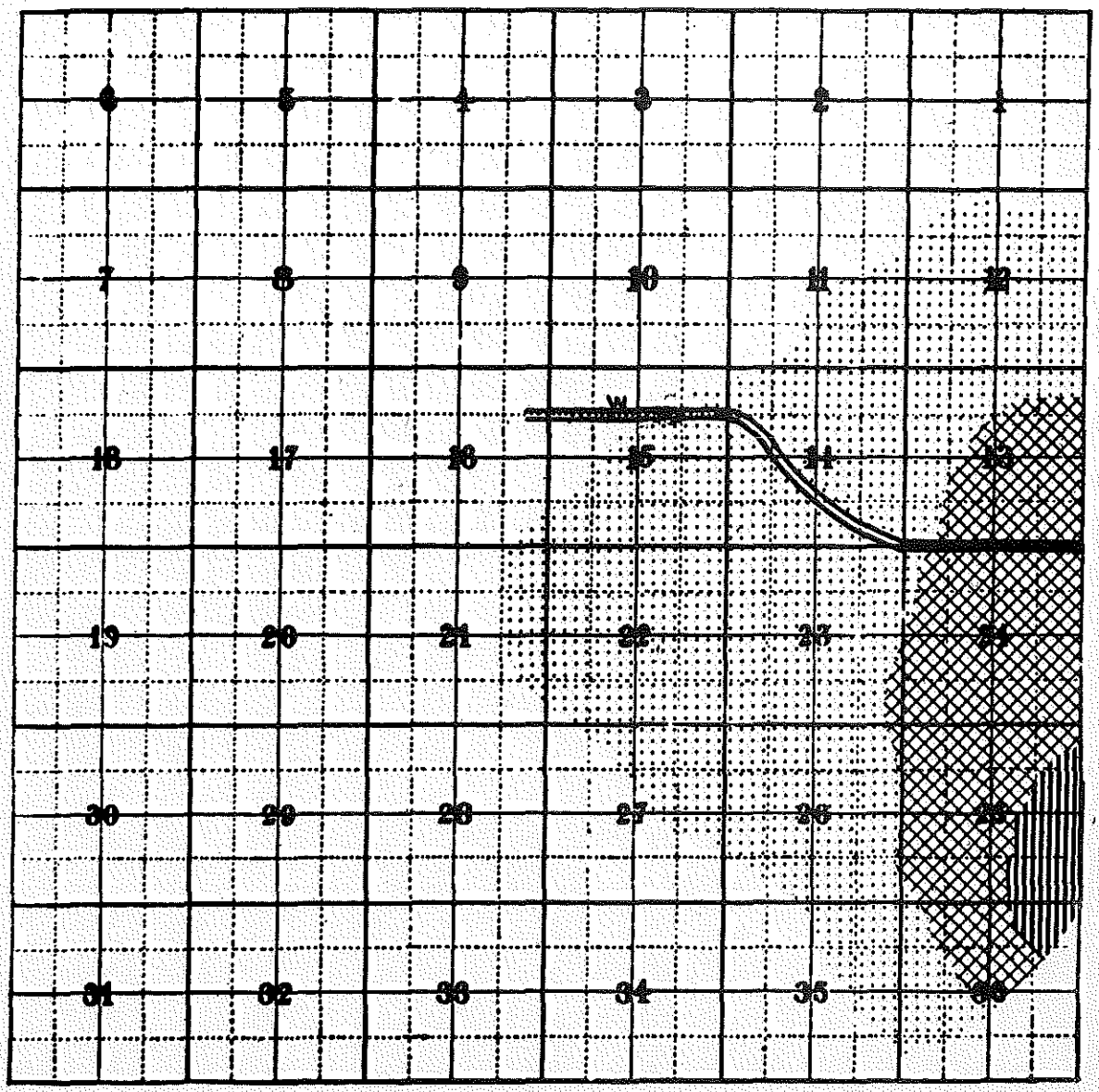
RANGE 19E.

LIGHT

MEDIUM

HEAVY

# FOREST INSECT CONDITIONS IN WISCONSIN 1954




## JACK PINE BUDWORM INFESTATION IN MARINETTE COUNTY - 1954

TOWNSHIP 32 N.
RANGE 18 E.

LIGHT
MEDIUM
HEAVY

# FOREST INSECT CONDITIONS IN WISCONSIN

1954

## *AREAS OF THE IMPORTANT INFESTATIONS OF 1954*

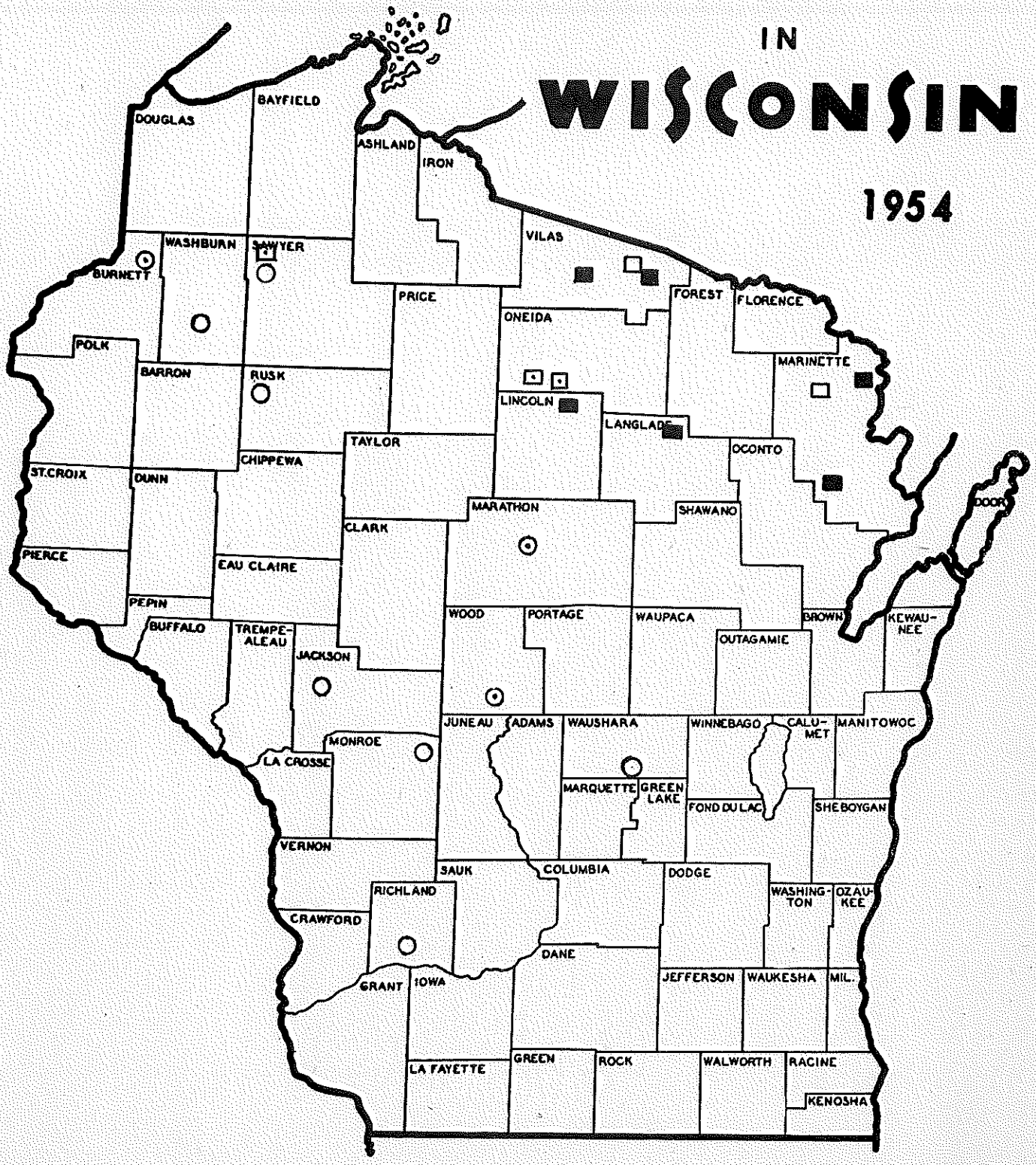
## EUROPEAN ELM BARK BEETLE

- □ *LIGHT INFESTATION*
- ⊡ *MEDIUM INFESTATION*

## INTRODUCED PINE SAWFLY

- ○ *LIGHT INFESTATION*
- ⊙ *MEDIUM INFESTATION*

# FOREST INSECT CONDITIONS IN WISCONSIN 1954




## *AREAS OF THE IMPORTANT INFESTATIONS OF 1954*

**SARATOGA SPITTLE BUG**

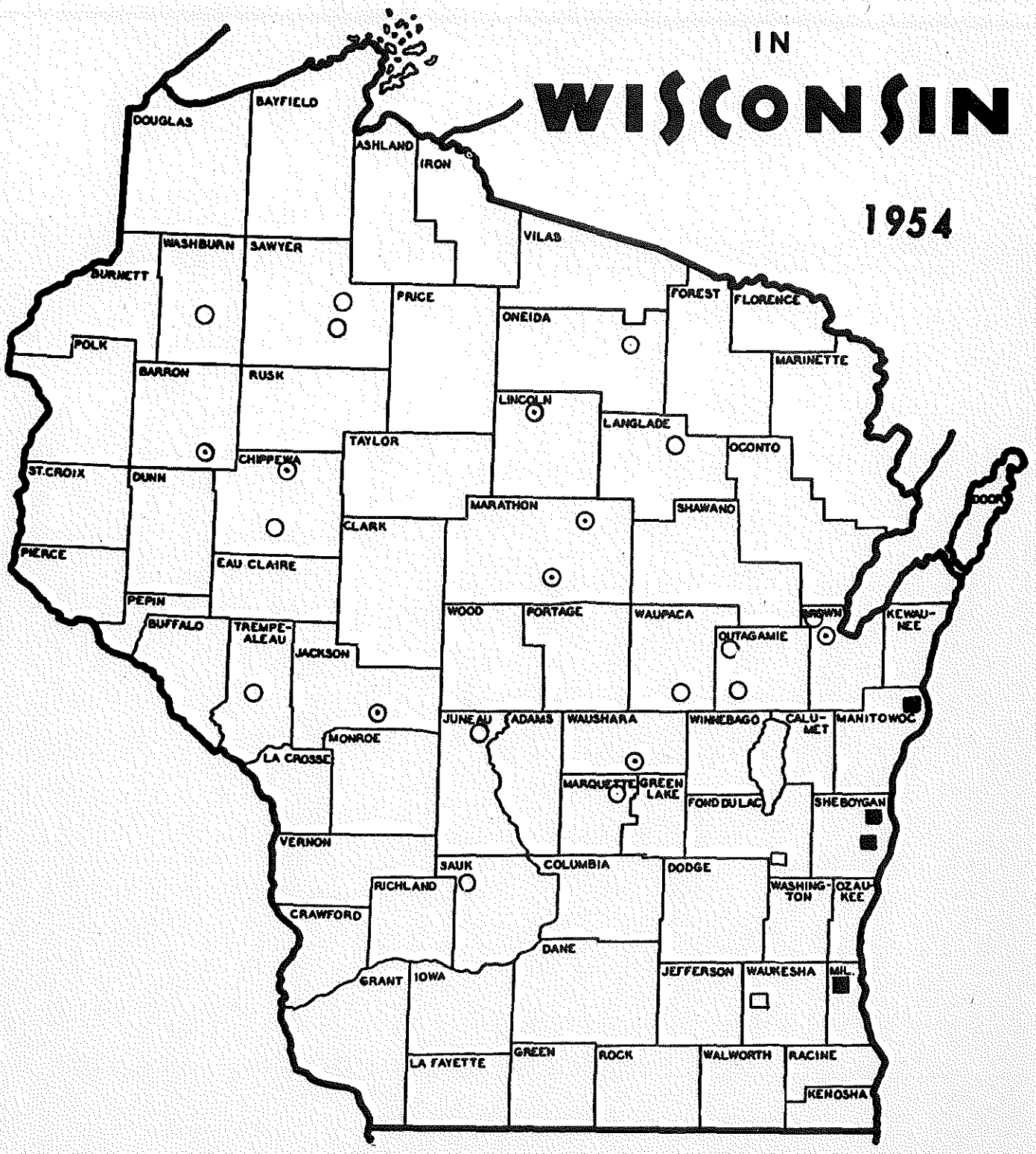
- □ *LIGHT INFESTATION*
- ▣ *MEDIUM INFESTATION*
- ■ *HEAVY INFESTATION*

**RED PINE SAWFLY**

- ○ *LIGHT INFESTATION*
- ⊙ *MEDIUM INFESTATION*
- ● *HEAVY INFESTATION*

# FOREST INSECT CONDITIONS IN WISCONSIN

1954




## AREAS OF THE IMPORTANT INFESTATIONS OF 1954

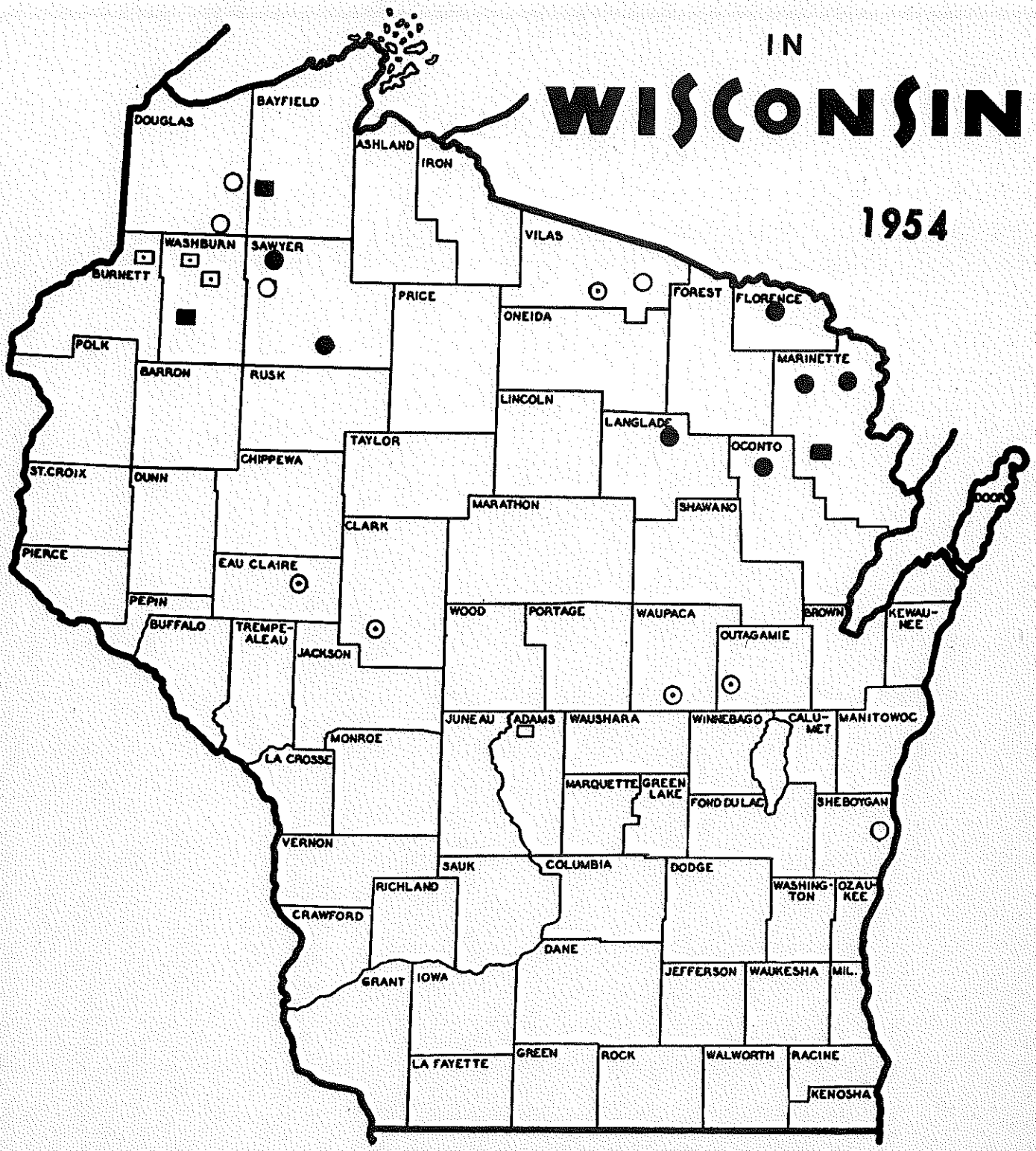
### EUROPEAN PINE SHOOT MOTH

- ▫ LIGHT INFESTATION
- ◘ MEDIUM INFESTATION

### RED-HEADED PINE SAWFLY

- ○ LIGHT INFESTATION
- ⊙ MEDIUM INFESTATION

# FOREST INSECT CONDITIONS IN WISCONSIN 1954




*AREAS OF THE IMPORTANT INFESTATIONS OF 1954*

## JACK PINE BUDWORM

- □ *LIGHT INFESTATION*
- ▣ *MEDIUM INFESTATION*
- ■ *HEAVY INFESTATION*

## PINE TORTOISE SCALE

- ○ *LIGHT INFESTATION*
- ⊙ *MEDIUM INFESTATION*

# FOREST INSECT CONDITIONS IN WISCONSIN 1954

## *AREAS OF THE IMPORTANT INFESTATIONS OF 1954*

### JACK PINE SAWFLY

- ○ *LIGHT INFESTATION*
- ◉ *MEDIUM INFESTATION*

### SWAINE'S SAWFLY

- □ *LIGHT INFESTATION*
- ⊡ *MEDIUM INFESTATION*

# FOREST INSECT CONDITIONS IN WISCONSIN 1954

## *AREAS OF THE IMPORTANT INFESTATIONS OF 1954*

## LARCH CASEBEARER

- ○ *LIGHT INFESTATION*
- ⊙ *MEDIUM INFESTATION*
- ● *HEAVY INFESTATION*